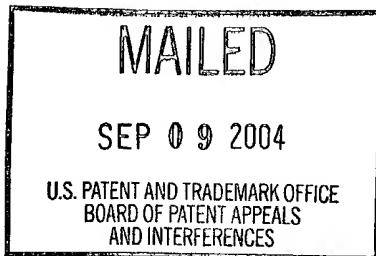


The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES



Ex parte TRUNG T. DOAN

Appeal No. 2004-0803  
Application No. 09/133,989

ON BRIEF

Before GARRIS, WARREN, and DELMENDO, Administrative Patent Judges.  
GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the final rejection of claims 12-33 which are all of the claims remaining in the application.

The subject matter on appeal relates to an apparatus for removing an edge bead from a wafer. The edge bead is an undesirable result of spin coating materials such as photoresist on to the wafer surface. The apparatus used to facilitate the edge bead removal comprises a negative pressure mechanism and a dispensing mechanism aligned with the negative pressure mechanism wherein the dispensing mechanism is configured to deliver a chemical that dissolves the bead.

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This appealed subject matter is adequately represented by  
independent claim 14 which reads as follows:

14. A bead remover for a wafer, comprising:  
a negative pressure mechanism configured to be spaced from a  
bead on said wafer while operating upon said bead; and  
a dispensing mechanism aligned with said negative pressure  
mechanism, wherein said dispensing mechanism is  
configured to deliver a chemical that dissolves said  
bead.

The prior art references of record relied upon by the examiner  
in rejecting the appealed claims are:

Fisch	4,314,022	Feb. 2, 1982
Kottman et al. (Kottman)	4,685,975	Aug. 11, 1987
Uchida et al. (Uchida) (Japanese patent application)	JP 56-73579	Jun. 18, 1981
Isono (Japanese patent document)	JP 2-157763	Jun. 18, 1990
Honda (Japanese patent application)	JP 8-5825	Jan. 12, 1996

The appealed claims stand rejected as follows:

I. Claims 14, 22-29, and 31-33 are rejected under 35 U.S.C.

§ 102(b) as being anticipated by Honda (JP '825) with  
Fisch.

II. Claim 28 is rejected under 35 U.S.C. § 102(b) as being  
anticipated by Isono (JP '763).

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III. Claims 12, 13, and 17-33 are rejected under 35 U.S.C.

§ 103(a) as being unpatentable over Kottman in view of  
Honda (JP '825).

IV. Claims 14-16 are rejected under 35 U.S.C. § 103(a) as  
being unpatentable over Uchida (JP '579) in view of Honda  
(JP '825).

Rather than reiterate the conflicting viewpoints expressed  
by the examiner and the appellant regarding the above-noted  
rejections, we make reference to the Answer (mailed October 7,  
2003) and the Final Office Action (mailed February 13, 2003) for  
the examiner's complete reasoning in support of the rejection, and  
to the Brief (filed July 21, 2003) and Reply Brief (filed November  
10, 2003) for the appellant's arguments.

As indicated by the appellant on pages 2-3 of the Brief and  
acknowledged on page 2 of the examiner's answer, the claims before  
us are separately grouped for consideration on this appeal in the

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following manner: (1) claims 14, 22-29, and 31-33, (2) claim 28, (3) claims 12, 13, and 17-33, and (4) claims 14-16.<sup>1</sup>

#### OPINION

For the reasons set forth below, we will sustain each of the aforementioned rejections of the appealed claims.

##### I. 35 U.S.C. § 102(b) Rejections

Anticipation is established only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of a claimed invention. RCA Corp. V. Applied Digital Data Sys., Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984). It is not necessary that the reference teach what the subject application teaches, but only that the claim read on something disclosed in the reference, i.e., that all of the limitations in the claim be found in or fully met by the reference.

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<sup>1</sup> Regarding rejections (1), (2), and (4), the appellant submits that all claims stand or fall together. (Appeal Brief, p.3). As to rejection (3), the appellant urges that the claims are separately patentable. (Id.) We point out, however, that merely pointing out differences in what the claims cover is not an argument for separate patentability within the meaning of 37 CFR § 1.192(c)(7)(2003)(effective Apr. 21, 1995). Nevertheless, we will consider the claims separately to the extent that the appellant argues them separately within the meaning of the regulation.

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Kalman v. Kimberly Clark Corp., 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983), cert. denied, 465 U.S. 1026 (1984).

a. 35 U.S.C. § 102(b): Claims 14, 22-29, and 31-33 over Honda (JP '825) with Fisch

The appellant has indicated on page 3 of the brief that claims 14, 22-29, and 31-33 are grouped together. Consistent with this grouping, the only arguments advanced against this subset of claims concern limitations generally defined by claim 14. Therefore, in assessing the merits of the rejection before us, we will focus upon claim 14, the language of which is set forth above. See In re Young, 927 F.2d 588, 590, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); compare In re McDaniel, 293 F.3d 1379, 1385, 63 USPQ2d 1462, 1464-1466 (Fed. Cir. 2002).

As detailed by the examiner in the Final Office Action dated February 13, 2003, Honda discloses a bead remover apparatus for a rectangular shaped wafer comprising a negative pressure or vacuum mechanism (11) spaced from a bead on the wafer while operating on the bead and dispensing mechanisms (12) aligned with the negative pressure mechanism (Fig. 3) where the dispensing mechanisms deliver chemical or developer solution that removes the bead. The examiner asserts that although Honda does not explicitly recite that the developer is a solvent for the bead, the developer inherently acts

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as a solvent (as evinced by the disclosure of Fisch). This assertion is the sole issue disputed by the appellant. Therefore, we conclude that the appellant has acquiesced to the examiner's assertions that Honda anticipates the structural features of the claimed apparatus, i.e., the negative pressure mechanism in combination with the dispensing mechanism.

Although the appellant attempts to refute the examiner's rejection on several grounds (see Appeal Brief, pages 3-7), the appellant's advanced arguments lack persuasive merit and are of questionable relevance with respect to the here rejected claims. Each of claims 14, 22-29, and 31-33 is directed at an apparatus for removing the edge bead from a wafer. The recitation in the claims, which relates to the dispensing mechanism being configured to deliver a chemical that dissolves said bead, concerns merely a function and intended use of the dispensing mechanism and does not require any structural feature other than those taught by Honda. Regardless of whether or not the developer solution in Honda functions as a solvent, the absence of a disclosure relating to function does not defeat a finding of anticipation. In re Schreiber, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). It is well settled that the recitation of a new intended

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use for an old product does not make a claim to that old product patentable. Id. (citing In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990)). Thus, the appellant's contention that his apparatus will be used to dispense solvent does not have patentable weight if the structure was already known, regardless of whether it has ever been used in any way in connection with a solvent. See id. ("Schreiber's contention that his structure will be used to dispense popcorn does not have patentable weight if the structure is already known, regardless of whether it has ever been used in any way in connection with popcorn.").

Therefore, we agree with the examiner's finding that claims 14, 22-29, and 31-33 are anticipated by Honda. This is because Honda discloses all of the structural features of the appellant's claimed apparatus.

Accordingly, we hereby sustain the examiner's § 102 rejection based on Honda.

b. 35 U.S.C. § 102(b): Claim 28 over Isono (JP '763)

The examiner separately rejected claim 28 over Isono. Claim 28 recites:

A chemical remover for a substrate, comprising:  
a nozzle directed toward the substrate during a dispensation mode and configured to couple to a source of a chemical that can dissolve a material on said substrate; and

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a vacuum device spaced from said material and directed toward said nozzle during said dispensation mode.

The examiner asserts that Isono discloses a chemical remover for a substrate comprising a nozzle (4) directed toward the substrate while the substrate is processed and moved with the nozzle being coupled to a source of chemical or solvent (10) to dissolve material on the substrate and a vacuum device or conduit (6) spaced from the material and directed toward the nozzle during processing (Fig. 1).

The appellant, in response, contends that Isono fails to anticipate claim 28 because Isono fails to disclose a vacuum device spaced from the material and directed toward the nozzle during the dispensation mode. The appellant relies on Isono's disclosure of sealing plates (21) and (31) that contact and seal the edges of the substrate from outside air to support this contention.

We perceive no reversible error in the examiner's rejection. During examination proceedings, claims must be given their broadest reasonable interpretation consistent with the specification. See In re Hyatt, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000) and § 2111 et seq. in the Manual of Patent Examining Procedure (8th Ed., Rev. 2, May 2004). The appellant is drawing



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an improperly narrow interpretation of Isono. Although Isono's apparatus does effect a seal, it is the sealing plates (21) and (31) that seal against the substrate, not the vacuum device or conduit (6). Rather, conduit (6), as properly interpreted by the examiner, anticipates a vacuum device spaced from the substrate as claimed by the appellant. With regards to the limitation that the vacuum device be directed toward the nozzle, we do not find the appellant's argument persuasive. Again, claims must be given their broadest reasonable interpretation, and the examiner properly interpreted conduit (6) as a vacuum device directed toward the nozzle since this arrangement is shown in Figure 1 of Isono.

Accordingly, we also hereby sustain the examiner's § 102 rejection based on Isono.

## II. 35 U.S.C. § 103(a) Rejections

Indispensable to the consideration of the examiner's § 103(a) rejection of claims 12, 13 and 17-33 over Kottman in view of Honda and rejection of claims 14-16 over Uchida in view of Honda is the analytical regimen set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), and explained with detail at § 2141 et seq. in the Manual of Patent Examining Procedure (8th Ed., Rev. 2, May 2004). Under § 103(a), the scope and content of the prior art are

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to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Graham, 383 U.S. at 17, 148 USPQ at 467. Our application of this analytical regimen reveals that the appellant's claimed apparatus would have been obvious to one of ordinary skill in the art at the time appellant's invention was made.

a. 35 U.S.C. § 103(a): Claims 12, 13, and 17-33 over Kottman in view of Honda

Claims 12, 13, and 17-33 are rejected by the examiner under 35 U.S.C. § 103(a) over Kottman in view of Honda. Although the appellant urges that the claims are separately patentable, (Appeal Brief, p.3), the only arguments advanced by the appellant concerning the claims within this subset are: (1) that claims 22, 23, 26, 27, and 31-33 require the apparatus to comprise two dispensers disposed on opposite sides of the wafer from one another and (2) that claims 29-33 require the dispenser to be disposed perpendicular to the wafer during the dissolution process. Therefore, we will address the appellant's arguments using independent claim 31 as a representative claim because it contains each of the argued limitations.

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Claim 31 recites:

A profiler for a wafer, comprising:

a dispenser perpendicular to said wafer during a dissolution process and comprising a location wherein solvent exits said dispenser;

a vacuumer surrounding at least a portion of said dispenser and separate from said wafer during said dissolution process, wherein said vacuumer surrounds said location; and

an additional dispenser perpendicular to said wafer; wherein said vacuumer surrounds at least a portion of said additional dispenser.

The examiner urges that Kottman teaches an apparatus for removing an edge bead from a coated wafer comprising a spinning chuck (24) having the wafer (26) thereon and a solvent dispensing mechanism (46, 55) for dispensing a solvent onto the wafer to remove an edge bead of coating material. The examiner admits that Kottman fails to teach the use of a suction mechanism to aid in removing the solvent. The examiner also admits that Kottman fails to teach a dispenser that is perpendicular to the wafer. The examiner therefore relies on the teachings of Honda as evidence that it would have been obvious to provide Kottman with a suction device to remove edge bead material and dispensers that are perpendicular to the wafer.

Although the appellant attempts to refute the examiner's rejection on multiple grounds (see Appeal Brief, pages 9-20), the appellant's advanced arguments are not persuasive.

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The appellant's primary contention is that it would not have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have combined the teachings of Kottman and Honda. In evaluating this contention, the following legal principles must be kept in mind. The test for obviousness is not whether the features of one reference may be bodily incorporated into the other to produce the claimed subject matter but rather is what the combined teachings of the references would have suggested to those of ordinary skill in the pertinent art. See, e.g., In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). The test for combining references is not what the individual references themselves suggest but rather what the combination of disclosures taken as a whole would have suggested to one of ordinary skill in the art. See In re McLaughlin, 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971).

We agree with the examiner that one of ordinary skill in the art would have been motivated to modify Kottman to include a negative pressure mechanism as taught by Honda in order to facilitate clean removal of the excess material along the substrate's periphery. Despite the appellant's assertions, the main purpose of Honda is not only to develop the substrate edge

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and interior at an equal rate, but also to remove the buildup of developer solution along the peripheral edge. Had Honda not been motivated to remove the buildup of developer along the peripheral edge, Honda would not have provided a negative pressure mechanism to aid in its removal. Therefore, Honda and Kottman are consistent with respect to having similar motivations in their desire to remove the buildup of material along the peripheral edge of the wafer. Furthermore, although it is true that the dispenser in Kottman is stationary whereas the dispenser and vacuum mechanisms in Honda are rotated about the periphery of the wafer, the teachings of Kottman and Honda are not incompatible as the appellant seems to believe. This is because the combination of reference teachings taken as a whole would have suggested to one of ordinary skill in the art that both stationary as well as moveable arrangements would be effective. Accordingly, we conclude that it would have been obvious to one of ordinary skill in the art to provide Kottman with dispenser and vacuum mechanisms of the type taught by Honda.

The appellant also contends that Kottman's failure to use a vacuum along the edge of the apparatus and a perpendicular dispenser teaches away from the use of these features because

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Kottman allegedly uses such features in other areas of the apparatus. In further support of this contention, the appellant cites Allen (Patent No. 4,518,678) for the proposition that the angled orientation of dispensers is "important." The appellant's assertions here are without convincing merit. First, the mere fact that a reference discloses a particular arrangement does not teach away from an alternative arrangement suggested by the prior art. See, e.g., In re Berg, 320 F.3d 1310, 1316, 65 USPQ2d 2003, 2007 (Fed. Cir. 2003). Second, Allen states that the positioning of the nozzle tip is important, not the positioning of the nozzle itself. (Col. 3, lines 22-31). Therefore, we conclude that Kottman does not teach away from the use of a vacuum or a perpendicular dispenser as claimed by the appellant.

In light of the foregoing, we conclude that it would have been obvious to modify Kottman to include a vacuum mechanism and two dispensers arranged perpendicular to the wafer as taught by Honda. In this regard, Honda provides an implicit motivation for such a modification because Honda teaches that a perpendicular arrangement allows the developer solution to be dripped upon the substrate and then drawn along the periphery via the negative pressure or vacuum mechanism (see p.3, paragraph 0006; Fig. 3).

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Accordingly, the examiner's § 103 rejection based on Kottman in view of Honda is hereby sustained.

b. 35 U.S.C. § 103(a): Claims 14-16 over Uchida in view of Honda

The appellant has indicated on page 3 of the brief that claims 14-16 are grouped together. Consistent with this grouping, the only arguments advanced against this subset of claims are those involving limitations defined by claim 14. Therefore, in assessing the merits of the rejection before us, we will focus upon claim 14, the language of which is set forth above. See In re Young, 927 F.2d 588, 590, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); compare In re McDaniel, 293 F.3d 1379, 1385, 63 USPQ2d 1462, 1464-1466 (Fed. Cir. 2002).

It is the examiner's position that Uchida teaches an apparatus for removing coating from the edge of a coated substrate comprising a negative pressure mechanism configured to operate on a thick film part or bead and a dispensing mechanism aligned and concentric with the negative pressure mechanism to apply solvent or water to remove the bead. The examiner acknowledges that Uchida fails to illustrate the apparatus being positioned or configured above the thick film part. The examiner cites Honda as evidence of a vacuum apparatus spaced from the wafer and posits that it would have been

obvious to one of ordinary skill in the art to modify Uchida by spacing the apparatus from the wafer surface in order to prevent wear and tear to the apparatus tip and eliminate excess cleaning of the tip.

The appellant, in response, generally asserts that Uchida teaches an edge bead remover that contacts the substrate while operating and that there is no motivation provided in either Uchida or Honda to modify the vacuum device of Uchida by spacing it from the bead on the wafer.

Having compared the subject matter defined by claim 14 and the subject matter disclosed by Uchida, we find that Uchida, viewed independently, anticipates the appellant's claimed invention.<sup>2</sup> Again, it is noted that the claimed invention is directed at an apparatus for removing the edge bead from a wafer. Regardless of whether or not the apparatus contacts the wafer

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<sup>2</sup> The claimed invention lacks novelty. Although the examiner's rejection is based on obviousness, a lack of novelty is the ultimate of obviousness. See In re Fracalossi, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982). To recognize this fact is not to replace the rejection with a new one based on anticipation. Id. Although the apparatus might have been obvious, though not anticipated, it cannot have been anticipated and not have been obvious. Id. Thus, evidence establishing lack of all novelty in the claimed invention necessarily evidences obviousness. Id.



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substrate, the absence of a disclosure relating to such a contact function does not defeat a finding of anticipation. In re Schreiber, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). It is well settled that the recitation of a new intended use for an old product does not make a claim to that old product patentable. Id. (citing In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990)). There is nothing in Uchida that would preclude the apparatus from being used to perform the function claimed by the appellant, (i.e., wherein the negative pressure "is configured to be spaced from a bead on said wafer while operating upon said bead.") We therefore find that Uchida discloses, expressly or under principles of inherency, each and every element defined by claim 14.

Accordingly, the examiner's rejection based on Uchida (and Honda) also is hereby sustained.

In summary: we have sustained the examiner's 35 U.S.C. § 102(b) rejections of claims 14, 22-29, and 31-33 in view of Honda and claim 28 in view of Isono; additionally, we have sustained the examiner's 35 U.S.C. § 103(a) rejections of claims 12, 13, and 17-33 over Kottman in view of Honda and claims 14-16 over Uchida in view of Honda.

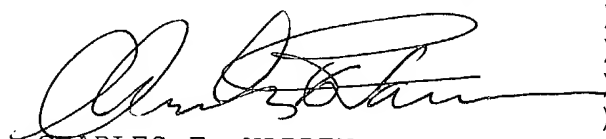
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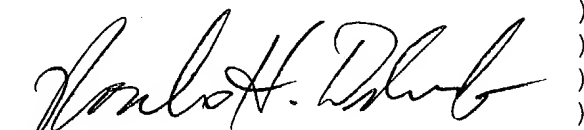
The decision of the examiner is affirmed.

No time period for taking any subsequent action in connection  
with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

  
BRADLEY R. GARRIS )  
Administrative Patent Judge )

  
CHARLES F. WARREN )  
Administrative Patent Judge )

  
ROMULO H. DELMENDO )  
Administrative Patent Judge )

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